

REMARKS

Claims 1-10, 12-14, and 16-23 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 112

Claims 1 - 21 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicants regard as the invention. This rejection is respectfully traversed.

The Examiner alleges that claim 1 is indefinite because it is unclear how a lip seal can have a shaft having an outer surface. To clarify the subject matter of claim 1, claim 1 has been amended to delete the limitation "a shaft having an outer surface." By this amendment, claims 1 – 21 are now in conformance with 35 U.S.C. § 112, second paragraph.

Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

REJECTION UNDER 35 U.S.C. § 103

Claims 1–11, 13, 15–17, 20–21 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Romero et al. (U.S. Pat. No. 5,186,472) in view of Peisker et al. (U.S. Pat. No. 4,501,431) in view of Hintenlang (U.S. Pat. No. 6,062,571) and in further view of Guth et al. (U.S. Pat. No. 6,336,638). This rejection is respectfully traversed.

The independent claims recite a lip seal for sealing a gap between a housing and an outer surface of a shaft. The lip seal comprises a supporting body, a static sealing element attached to a supporting body, and a dynamic sealing element attached to the supporting body that directly contacts the outer surface of the shaft to be sealed. The dynamic sealing element forms a lip that is deformed to curve in a direction of a space to be sealed off or in a direction of an exterior environment upon direct contact with the shaft. The Examiner, however, alleges that it would have been obvious to one having ordinary skill in the art to configure the dynamic sealing element and the lip surface of Romero '472 to have the dynamic sealing element directly contact the shaft as taught by Peisker because a dynamic sealing element directly contacted to an outer surface of a shaft, or a casing that is mounted on the shaft, is considered to be an art equivalent. Notwithstanding, Applicants respectfully assert that such a configuration is not obvious in view of the alleged combination of Romero '472 and Peisker.

More specifically, Romero '472 is directed to a unitized radial shaft seal including a seal body 40. As described in Romero '472, the "[s]eal body 40 may be formed with a primary seal lip 42 which rotates and slides against the inner surface 44 of inner axial portion 24 of the inner casing 12. Romero '472 at column 4, lines 9-11 (emphasis added). By this disclosure, Romero '472 teaches a configuration wherein the seal body 40 does not directly contact a shaft to be sealed, as claimed.

Further, the configuration of Romero '472 teaches away from the claimed invention because the claimed invention is directed to a lip seal that includes a dynamic sealing element formed of an elastomeric material that has a higher thermal stability than a material of the static seal. This is significant because the dynamic seal of the

claimed invention directly contacts an outer surface of the shaft to be sealed. By having the dynamic seal formed of a material that has a higher thermal stability, the dynamic seal will have increased resistance to wear and tear which will prolong its useful life. Romero '472, on the other hand, teaches a configuration wherein the seal body contacts an inner casing instead of a shaft. Because Romero '472 teaches a configuration wherein the seal body is in contact with a casing instead of a shaft, Romero '472 would not be expected to have the wear and tear problems that the claimed invention intends to solve. As such, there is no teaching or suggestion in Romero '472 that would lead one skilled in the art to modify the teachings of Romero '472 with the Peisker's teaching of a seal that contacts a shaft to arrive at the claimed invention.

Still further, the independent claims have been amended to recite that the dynamic sealing element forms a lip that is deformed to curve in a direction of a space to be sealed off or in a direction of an environment upon contact with the shaft. This amendment is supported, for example, at paragraph [0009] of the specification where it is disclosed that the sealing element is an annular disk before being slid over the shaft. After being slid over the shaft, as shown in Figure 1 for example, the sealing element 7 is deformed to curve so as to lay over the shaft 3. The teachings of Romero '472 and Peisker do not render obvious such a configuration.

More particularly, Romero '472 is a radial seal that is preformed (as opposed to being deformed), and Peisker is also a preformed seal. As such, there is no teaching or suggestion in either reference of a dynamic sealing element that forms a lip deformed to curve in a direction of a space to be sealed off or in a direction of an exterior

environment upon directly contacting the outer surface of the shaft such that the lip lays over the outer surface of the shaft, as claimed. Because this element of the claimed invention is neither taught nor suggested, it would not have been obvious.

Because there is no motivation to modify the teachings of Romero '472 with the teachings of Peisker, there is also no motivation to combine the teachings of Romero '472 and Peisker with the teachings of either Hintenlang or Guth. More specifically, Hintenlang merely teaches that the sealing element can be made of a different material than the static sealing element, and Guth merely teaches that PTFE has good thermal stability. Neither Hintenlang nor Guth, however, teaches or suggests a configuration wherein a dynamic sealing element is formed of an elastomeric material that has a higher thermal stability in comparison to a static sealing element. This is because Hintenlang is completely silent with respect to thermal properties, and Guth merely states that PTFE has good thermal properties. Notwithstanding, the claimed invention does not recite a dynamic sealing element formed of PTFE. In contrast, the claimed invention recites an elastomeric dynamic sealing element having higher thermal stability than the material of the static seal. Guth is completely silent with respect to the thermal stability of its sealing element in comparison to a static seal. Furthermore, as stated above, Guth describes a seal made of PTFE. PTFE is not an elastomer. Because this element of the claimed invention is neither taught nor suggested, the claimed invention would not have been obvious.

Furthermore, Applicants respectfully assert that rejections based on 35 U.S.C. § 103 must rest on a factual basis. In making such a rejection, the Examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that

the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. *In re Warner*, 379 F.2d 1011, 1017; 154 USPQ 173, 178 (CCPA 1967), *cert. denied*, 389 U.S. 1075 (1968). Evidence of a suggestion, teaching or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, although the suggestion more often comes from the teachings of the pertinent references. The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not “evidence.” *In re Dembiczak*, 175 F.2d 994, 999; 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference. *See In re Kotzab*, 217 F.3d 1365, 1370; 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000).

In light of the foregoing, Applicants respectfully assert that the Examiner has not established a factual basis, is resorting to speculation, and is using improper hindsight reasoning in finding the claimed invention obvious. That is, there is no motivation to modify the Romero ‘472 reference to include a sealing body that directly contacts a shaft to be sealed because the Romero ‘472 reference teaches a configuration wherein the sealing body contacts an inner casing.

Moreover, none of the cited references, either singularly or in combination, teach a configuration wherein a dynamic sealing element is formed of a material that has a higher thermal stability than a static sealing element. This is because the Guth

reference merely teaches that PTFE has good thermal properties. Notwithstanding, there is no teaching or suggestion in Guth that a PTFE sealing element has higher thermal properties in comparison to a static sealing element, as claimed. Accordingly, Applicants respectfully assert that the claimed invention would not have been obvious in view of the combined teachings of Romero '472, Peisker, Hintenlang, and Guth.

Claims 1 and 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Romero (U.S. Pat. No. 4,936,591) in view of Peisker in view of Hintenlang and in further view of Guth.

Romero '591 is similar to Romero '472, addressed above, in that a seal body 40 also is in contact with a casing 12 instead of a shaft, as claimed. As such, Applicants respectfully assert that the claimed invention is not obvious in view of the combined teachings of Romero '591, Peisker, Hintenlang, and Guth for at least the same reasons as stated above.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Romero, Peisker, Hintenlang and Guth as applied to claim 1 in paragraph 5, and further in view of Besson et al (U.S. Pat. No. 6,401,843).

Claim 14 is dependent on independent claim 1, addressed above. Claim 14 would not have been obvious for at least the same reasons.

Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Romero, Peisker, Hintenlang and Guth as applied to claim 1 above in paragraph 5, and further in view of Forschirm (U.S. Pat. No. 5,886,066).

Claim 18 is dependent on independent claim 1, addressed above. Claim 14 would not have been obvious for at least the same reasons.

Claim 19 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Romero, Peisker, Hintenlang and Guth as applied to claim 1 above in paragraph 5, and further in view of Johnston et al. (U.S. Pat. No. 6,428,013).

Claim 19 is dependent on independent claim 1, addressed above. Claim 14 would not have been obvious for at least the same reasons.

NEW CLAIM

New claim 23 has been added. The subject matter of new claim 23 is described throughout the specification and drawings as originally filed. No new matter has been added. Specifically, new claim 23 is supported at Figure 1 where it can be seen that the static sealing element 14 completely envelopes the two opposing sides of the cylindrical part 33 that runs axially with the shaft. Such a configuration is neither taught nor suggested by the prior art. As such, such a configuration is neither anticipated nor obvious. Favorable consideration of this new claim is respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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